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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,881	08/31/2001	Ping Li	021238-478	9479

7590

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EXAMINER

WALLS, DIONNE A

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,881

Applicant(s)

LI ET AL.

Examiner

Dionne A. Walls

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-22, 25-30, 33-58, 60-69, 71-74 and rejected under 35 U.S.C. 103(a) as being unpatentable over Heim et al (US. Pat. No. 4,193,412) in view of Stephens (US. Pat. No. 3,472,237).

3. Heim et al discloses tobacco products (and a method of making same), which include commercial cigarettes (which conventionally have a wrapper – satisfying claim 25), wherein the natural tobacco used as smoking material (corresponding to the claimed “cut filler”) contains a metal oxide additive, in a variety of forms, i.e. amorphous (satisfying claims 39 and 41). These metal oxides are provided such that they exhibit average particle sizes ranging from 30-500 nanometers (corresponding to the claimed “nanoparticles/average particles size of less than 500/100/50 nm”); and surface areas which correspond to those that are claimed. (see entire document). While Heim et al may not specifically disclose that the purpose of the metal oxides is to serve as an oxidant for the conversion of carbon monoxide to carbon dioxide and/or as a catalyst for the conversion of carbon monoxide to carbon dioxide, Heim et al does disclose that the metal oxide additives are utilized in the invention for their superior ability to remove toxic

substances form tobacco smoke (col. 2, lines 39-41). Further, it is known that the principal function of the metal catalyst during the smoking of a cigarette is to catalyze the oxidation of the carbon monoxide generated to carbon dioxide metal oxides (see the Stephens reference, col. 2, lines 32-41). This suggests that metal oxides serve to both oxidize carbon monoxide and catalyze the oxidation process. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize the metal oxides disclosed in Heim et al for this purpose (corresponding to the claimed "capable of acting as both an oxidant.....and as a catalyst") in order to reduce the toxic components of cigarette smoke – which is the goal of both Heim and Stephens.

Regarding claims 9, 20 and 30, while Heim et al modified by Stephens may not specifically disclose that the additive has an average particle size of less than about 5 nm, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide the metal oxide additive a small a particle size as possible, since the effectiveness of the additive, and the crux of the invention, lies, in part, in the fact that the additive has a large surface area (see col. 2, lines 42-55), and its widely known in many arts that the smaller the particle size of the substance, the larger its surface area.

Regarding claims 4-5, 15-16, 34-35, 40, 42, 43-51, 53-58, 60-62, 64-69, and 71-73, while Heim et al may not disclose that the additive is iron oxide, Heim does state that various types of metal oxides may be used as an additive in its invention. Further, Stephens indicates that iron oxide, specifically, is a preferable metal species to effectuate/promote the conversion of carbon monoxide to carbon dioxide (see col. 2,

lines 39-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize iron oxide as an additive to the tobacco material of Heim et al modified by Stephens since it is a metal oxide known for promoting the formation of carbon dioxide, and for reducing toxic substances in cigarette smoke. While Heim et al modified by Stephens may not specifically state that the iron oxide would be added in an amount effective to convert at least 50% of the carbon monoxide to carbon dioxide, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a sufficient amount of the ferric oxide to achieve this goal, since the purpose of adding the metal oxide is to remove/convert as much of the harmful gas as possible. Also, one having ordinary skill in the art would have been motivated to optimize the particle size and surface area of the additive in order to achieve the greatest amount of carbon monoxide (i.e. generation of carbon dioxide) removal as possible.

Lastly, while Heim et al modified by Stephens may not specifically state that the additive oxidizes and/or catalyzes the conversion of carbon monoxide to carbon dioxide at the claimed temperature ranges, one having ordinary skill in the art would have known that said metal oxides would have oxidized at the combustion temperature of the cigarette – which corresponds with the claimed temperature ranges.

4. Claims 23-24, 31-32, 59, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heim et al (US. Pat. No. 4,193,412) in view of Stephens (US. Pat. No. 3,472,237) and further in view of Fischer et al (US. Pat. No. 4,574,821).

While Heim et al modified by Stephens may not disclose a cigarette that comprises 5-100 mg or 40-50 mg of additive, Heim does disclose that the additive can constitute 10% by weight of the tobacco filler (see table 2). Additionally, Fischer discloses that cigarettes can be manufactured which contain from 200 – 1000 mg of tobacco filler. Therefore, a cigarette having 20-100 mg of additive is contemplated if one having ordinary skill in the art utilized the cigarette disclosed in Fischer. It would have been obvious to one having ordinary skill in the art at the time of the invention to fabricate a cigarette having, for example, 450 mg of tobacco which would result in a cigarette containing 45 mg of additive (hence, satisfying the claims), since construction of cigarettes having this amount of tobacco is known as evidenced by the Fischer disclosure.

Response to Arguments

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Augustine et al (US. Pat. No. 5,258,340)
- Augustine et al (US. Pat. No. 5,466,003)

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne A. Walls whose telephone number is (703) 305-0933. The examiner can normally be reached on Mon-Fri, 7AM - 4:30PM (Every other Friday off).

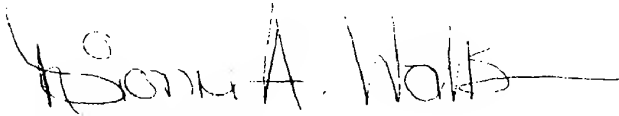
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on (703) 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

A handwritten signature in dark ink, appearing to read "Dionne A. Walls", with a horizontal line extending to the right.

Dionne A. Walls
July 3, 2003